Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim Amendments

1-32. (Canceled)

33. (New) A method of silencing a target gene in an organism by post-transcriptional gene silencing (PTGS),

the method comprising the step of introducing into the organism a silencing agent which targets a targeted region of said target gene,

wherein the silencing agent comprises short RNA molecules (SRMs) which are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides, and which are specific for the targeted region of the target gene.

34. (New) The method of claim 33 wherein said silencing agent consists of said short RNA molecules.

35. (New) The method of claim 33 wherein said silencing agent comprises short RNA molecules which are 21 to 25 nucleotides in length.

36. (New) The method of claim 33 wherein said silencing agent consists of short RNA molecules which are 21 to 25 nucleotides in length.

37. (New) The method of claim 33 wherein said SRMs are short anti-sense RNA molecules (SARMs) and/or short sense RNA molecules (SSRMs).

38. (New) The method of claim 33 wherein said SRMs are short anti-sense RNA molecules.

39. (New) The method of claim 33 wherein said SRMs are short sense RNA molecules.

40. (New) A method of silencing a target gene in an organism , comprising

(a) providing a DNA construct containing a promoter operably linked to a DNA which upon transcription in a host cell results in a silencing agent specific to a target gene, wherein the silencing agent comprises one or more short RNA molecules (SRMs) which are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides, and which silencing agent is specific for a targeted region in a target gene.

(b) introducing said construct into said organism such that the target gene in the organism is silenced by the silencing agent transcribed by said promoter.

41. (New) The method of claim 40 wherein said silencing agent comprises short RNA molecules 21 to 25 nucleotides in length.

42. (New) The method of claim 40 wherein said silencing agent comprises short RNA molecules (SRMs) wherein said SRMs are short anti-sense RNA molecules (SARMs) and/or short sense RNA molecules (SSRMs).

43. (New) The method of claim 42 wherein said SRMs are SARMs.

44. (New) The method of claim 42 wherein said SRMs are SSRMs.

45. (New) A host cell containing a DNA construct which comprises a promoter operably linked to DNA which upon transcription in the host cell results in a silencing agent specific to a target gene, and wherein the silencing agent comprises one or more short RNA molecules (SRMs) which are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides, and which SRMs are specific for a targeted region in a target gene and upon transcription silence the target gene.

46. (New) A method of selecting a target region in a target gene which is desired to be silenced comprising:

(I) isolating one or more RNA molecules from a sample, wherein said RNA molecules are short RNA molecules (SRMs) which are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides, and which are specific for a target region of a target gene by:

(a) producing a nucleic acid extract from said sample;

(b) purifying said extract to obtain purified RNA molecules by effecting at least one purification step selected from the group consisting of (i) filtration; (ii) differential precipitation and (iii) ion exchange chromatography and isolating SRMs which are silencing agents for said target gene;

(II) identifying a target region in the sequence of said target gene which corresponds to a sequence comprised in said SRMs.

47. (New) The method of claim 46 which further comprises separating the purified RNA molecules according to size by gel electrophoresis using a 15% polyacrylamide gel containing 7M urea as a denaturant and TBE (0.5x) as a buffer.

48. (New) The method of claim 47 which further comprises transferring the RNA molecules comprised on the gel to a hybridization membrane by electrophoresis.

49. (New) The method of claim 48 which further comprises labeling the RNA molecules comprised on the hybridization membrane using a radioactive probe obtained from a single stranded RNA molecule transcribed in vitro from a plasmid DNA template.

50. (New) A method of silencing a target gene in an organism comprising:

(i) performing a method according to claim 45 to select a target region of a target gene to be silenced; and

(ii) silencing said target gene in an organism by targeting said target region with a silencing agent.

51. (New) The method of claim 50 wherein step (ii) is effected by introducing into the organism SRMs specific to the targeted region of the target gene which induce silencing of said target gene.

52. (New) The method of claim 51 wherein said SRMs comprise RNA molecules which are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides.

53. (New) The method of claim 52 wherein said SRMs comprise RNAs which are 21 to 25 nucleotides in length.

54. (New) A method of silencing a target gene in a first organism comprising:

(i) generating in a second organism short RNA molecules (SRMs) which are a silencing agent for said target gene, wherein said SRMs are 25 nucleotides in length plus or minus 1, 2, 3, 4 or 5 nucleotides, and are specific for a target region in said target gene; and (ii) introducing said SRMs into said first organism in order to silence said target gene comprised therein.

55. (New) The method of claim 54 wherein said SRMs are 21 to 25 nucleotides in length.

56. (New) The method of claim 54 wherein said SRMs are short anti-sense RNA molecules (SARMs) and/or short sense RNA molecules (SSRMs)

57. (New) The method of claim 54 wherein said SRMs are SARMs.

58. (New) The method of claim 54 wherein said SRMs are SSRMs.

59. (New) The method of claim 54 wherein said target gene is endogenous to the first organism but is not endogenous to the second organism.